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Indian Standard

CODE OF PRACTICE FOR ERECTION AND
CALIBRATION OF DIRECTION-FINDERS
(MEDIUM FREQUENCY) FOR MARINE USE

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Indian Standard

CODE OF PRACTICE FOR ERECTION AND CALIBRATION OF DIRECTION-FINDERS (MEDIUM FREQUENCY) FOR MARINE USE

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· *Continued on page 2* ·

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NEW DELHI

(*Continued from page 1*)

**Panel for Automatic Alarm Signal, Direction-Finder and
Portable Radio Apparatus for Lifeboats, EDC 56 : 5 : 2**

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Indian Standard

CODE OF PRACTICE FOR ERECTION AND CALIBRATION OF DIRECTION-FINDERS (MEDIUM FREQUENCY) FOR MARINE USE

0. F O R E W O R D

0.1 This Indian Standard was adopted by the Indian Standards Institution on 29 August 1967, after the draft finalized by the Marine Instruments and Safety Aids Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 This standard generally incorporates the requirements under the *Merchant Shipping Act*, 1958 and the rules made thereunder and in addition the erection and calibration of direction-finders (medium frequency) on boardships, is subject to the approval by the Government of India, under the said act and the rules.

1. SCOPE

1.1 This standard deals with the requirements of erection and calibration of direction-finders used on board ships.

2. REQUIREMENTS

2.1 General -- Every sea-going ship of 1 600 gross tonnage and upwards engaged on international voyages shall be fitted with a direction-finder. The direction-finder shall include a receiver and an aerial system.

2.1.1 The mechanical parts of the direction-finder aerial system, other than ball bearings, hose clips, set screws and other similar parts, shall consist of non-magnetic material.

2.1.2 Interference with Reception -- At any time, when the ship is at sea, there shall be no interference or mechanical noise produced by the direction-finder or by other equipment in the ship, is to effect efficient determination of radio bearings by means of the direction-finder.

2.1.2.1 Every ship shall be provided with a communal aerial system for all broadcast receivers in respect of which it is impracticable to erect efficient and properly installed aerials which:

- a) are outside a radius of 15·2 metres from the direction-finder aerial; or

- b) do not rise above the base of the direction-finder aerial; or
- c) can be lowered quickly and stowed easily when the direction-finder is in use.

2.1.3 High Voltage Parts — All parts and wiring of the equipment used with the direction-finder shall be protected from accidental access if the direct and alternating voltage (other than radio frequency voltages) used is likely to reach a peak voltage greater than 250 volts.

Except, in the case of a generator or converter, these shall be isolated automatically from all sources of electrical energy when the means of protection are removed.

2.1.4 Supply of Electrical Energy — When the ship is at sea, a supply of electrical energy sufficient for the operation of the direction-finder shall be available at all times.

When the ship is in port, a supply of electrical energy sufficient for testing purposes and for charging of any batteries which are a source of electrical energy for the direction-finder, shall be available at all reasonable times.

2.1.5 If batteries are provided as a source of electrical energy for the direction-finder, means shall be provided on board every ship for the charging of such batteries from the ship's main source of electrical energy.

2.2 The direction-finder shall be free from mechanical defects and shall comply with the performance tests and other requirements given in ' Indian Standard specification for technical requirements for direction-finder for marine use ' (*under preparation*).

3. INSTALLATION OF DIRECTION-FINDER

3.1 The direction-finder shall be installed in such a position that efficient determination of radio bearings by means of the direction-finder, will not be hindered by extraneous noise.

3.2 Loop aerial system shall be mounted in such a manner that the efficient determination of radio bearings by means of the direction-finder will be effected to the minimum by the proximity of aerials, derricks, wire halyards and other large metal objects.

3.3 Unless the feeder cables connecting the loop aerial system with the receiver, forming part of the direction-finder, consists of solid-dielectric screened cable, they shall be protected by metal tubes which are bonded to earth. The joints of the feeder cables shall be watertight.

4. MEANS OF COMMUNICATION

- 4.1** Every ship shall be equipped with an efficient two-way means of calling and voice communication between the receiver forming part of the direction-finder and the bridge from which the ship is normally navigated.
- 4.2** Every ship shall be provided with an efficient means of signalling between the receiver forming part of the direction-finder and the ship's standard compass or gyro compass repeater, if any.

5. RESTRICTION ON USE OF THE DIRECTION-FINDER

- 5.1** The direction-finder shall not be used for any purpose other than the business of the ship.
- 5.2** The direction-finder shall not be used for keeping the radio watch required by the statutory rules.

6. CALIBRATION AND CHECKING

- 6.1** The direction-finder shall be calibrated by two persons, one experienced in taking of radio bearings and the other experienced in taking visual bearings.
- 6.2** The direction-finder shall be calibrated as soon as it has been installed in the ship and whenever any change is made in the position of the loop-aerial system.

6.3 Method of Calibration

- 6.3.1** The calibration of the direction-finder shall be carried out by taking simultaneously visual bearings upon a calibrating transmitter and radio bearings thereon by means of the direction-finder, the ship being either swung through a complete circle, or circled by another ship carrying the calibrating transmitter.

In both the cases the bearings shall be taken throughout 360 degrees at intervals of not less than 5 degrees. The calibrating transmitter upon which the bearings are taken, whether situated ashore or on board another ship, shall be a transmitter operating on a frequency between 285 kc/s and 425 kc/s.

- 6.3.2** The calibration tables and curves shall be prepared on the basis of the results of **6.3.1** and maintained on board the ship.

6.4 Check Bearing

- 6.4.1** The calibration tables and curves prepared in accordance with **6.3.1** shall be verified by means of check bearings at intervals not

exceeding twelve months, and whenever any change is made in any structure or fitting on deck which is likely to affect the accuracy.

6.4.2 If such verification shall show that the calibration tables or curves are materially inaccurate, the direction-finder shall be recalibrated as soon as practicable in the manner specified in **6.3.1**.

6.5 Records

6.5.1 The following records shall be available for reference, at all time, on board the ship:

- a) Latest calibration tables and curves, and
- b) A list or diagram indicating the conditions and position during the last calibration of the aerials and of all movable structures on board which might affect the accuracy of the direction-finder.

6.5.2 A record of check bearings shall be maintained in the pro forma shown in Appendix A.

A P P E N D I X A
 (Clause 6.5.2)

**PRO FORMA FOR THE RECORD OF CHECK-BEARINGS TAKEN BY
 MEANS OF THE DIRECTION-FINDER**

(1)	Serial Number of Bearing			Date	Time (GMT)	Latitude	Longitude	Distance from Transmitter	Direction-Finder Bearing of (Name)	Direction-Finder Relative Bearings	Corrected for Q.E.	Ship's Head by Compass 0/360°	Ship's Head Corrected (True)	True bearing by Differon-Finder	Visual Check (Whether Calculation or by Lateral or Visual to be indicated)	Correction Required to col (14) Make bearing Whichever (+) or (-)	Signature of Observer or Observers	
(2)				(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
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AMENDMENT NO. 1 MAY 1994
TO
IS 4259 : 1967 CODE OF PRACTICE FOR ERECTION
AND CALIBRATION OF DIRECTION-FINDERS
(MEDIUM FREQUENCY) FOR MARINE USE

(*Page 5, clause 6.3.1, para 2*) -- Add the following text at the end of the existing para:

'The above calibration procedure for Medium Frequency to be repeated for Radio Telephone Frequency near to 2182 kHz.'

(TED 20)

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